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10/531,899	11/15/2005	Atsushi Murashima	03830052AA	5822

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EXAMINER	
LEE, GINA W	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,899	MURASHIMA, ATSUSHI	
	Examiner	Art Unit	
	GINA W. LEE	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-4,6-8,10-12 and 14-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4,6-8,10-12 and 14-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *21 April 2005, 27 January 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Oath/Declaration

2. The oath or declaration filed 4/13/2006 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because the full name of the inventor has not been set forth properly. The oath filed 11/15/2005 and resubmitted 4/13/2006, although now signed by Atsushi Murashima, still lists the "Name of Sole or First Inventor" as "YOSHIMI SHIRAMIZU", even though immediately below it lists the "Given Name" as "Atsushi" and the "Family Name or Surname" as "Murashima". A corrected oath or declaration clearly indicating only the correct full name of the inventor is required.

Specification

3. The abstract of the disclosure is objected to because the meaning of the phrase "which are ever decoded" is not idiomatic English. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. **Claim 2** is objected to because of the following informalities:

- The preamble recites `a method ... which converts first codes based on a first system to second codes based on a second system` and uses the terms "first codes" and "second codes" throughout the claim. The examiner submits that the meaning of the "first codes" and "second codes" is unclear, and suggests that the wording be changed to clarify that the data are encoded speech data (presumably using CELP-based encoding) instead of the generic term "codes". Appropriate correction is required.
- The claim recites a limitation `wherein when said first codes are unavailable, said second codes are obtained by directly using speech parameters which are ever decoded in accordance with said first system and are stored.` The meaning of this limitation is unclear, especially the phrase "which are ever decoded", which is not idiomatic English. This limitation has been treated as having the meaning that when data encoded according to a first format is unavailable, reconstructed data are used.

5. **Claim 11** is objected to because of the following informalities: "wherein said processes further comprising" *(line 2 of the claim)* should be changed to "wherein said processes further comprise". Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 10-12 and 16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

8. The preamble of independent **claim 10** recites: A ***computer program product*** embodied on a ***computer-readable medium*** and comprising code that, when executed, causes a computer to perform processes… (emphasis added). It is noted that the terms "computer program product" and "computer-readable medium" are not defined in the Specification. Therefore, the examiner has treated "computer program product" as equivalent to the "computer program" of the Specification *(e.g. Specification, page 59, line 21)*, and "computer-readable medium" as equivalent to the "recording medium" of the Specification that stores the computer program *(e.g. Specification, page 59, line 21)*. The Specification states that "the recording medium may include a communication medium of wired or wireless communication to transmit the program, for example, when the program is transmitted from a server to a computer" *(Specification, page 62, lines 16-20)*.

Therefore, the scope of claim 10 includes embodiments of a computer program as a signal, and as such is nonstatutory, as an encoded signal *per se* is a form of energy and thus not a process, machine, manufacture, or composition of matter. (See MPEP § 2106.IV.B) A transmitted signal in itself lacks physical structure and fails to realize the functionality of the functional descriptive material (the computer program) in a computer. (See, e.g., In re Nuitjen, Docket no. 2006-1371 (Fed. Cir. Sept. 20, 2007).)

9. **Claims 11, 12, and 16** are dependent on claim 10 and are likewise directed to an encoded signal, and therefore do not fall within any of the statutory classes of § 101.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 2-4, 6-8, 10-12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dejaco (US 6,260,009) in view of Kroon et al. (US 5,732,389), hereinafter referred to as Kroon.

12. With respect to independent **claim 2**, Dejaco teaches `a method of converting code which converts first codes based on a first system to second codes based on a second system, comprising` *(col. 6, lines 42-50, input speech packets having an input CELP format are translated to output packets having an output CELP format)*:

- `obtaining data of first linear prediction coefficients from said first codes` *(Fig. 6, col. 6, lines 42-46, input speech packets comprise formant filter coefficients in the input format; col. 4, lines 39-40, formant filter coefficients are LPC coefficients)*;
- `obtaining data of first excitation signal from said first codes` *(Fig. 6, col. 6, lines 42-46, input speech packets comprise input codebook and pitch parameters (excitation parameters) in the input format)*;
- `obtaining data of second linear prediction coefficients from said current data of first linear prediction coefficients`

(Fig. 6, col. 6, line 63-col. 7, line 4, formant parameter translator (620) translates the input formant filter coefficients to the output format to produce output formant filter coefficients; col. 4, lines 39-40, formant filter coefficients are LPC coefficients) ; and

- obtaining data of second excitation signal from said current data of first excitation signal *(Fig. 6, col. 6, line 63-col. 7, line 8, excitation parameter translator (630) translates the input pitch and codebook parameters to the output format to produce output pitch and codebook parameters)* .

Dejaco does not explicitly teach the steps of:

- storing said data of first linear prediction coefficients; and
- storing said data of first excitation signal;

however, it is inherent that the received data be stored, even if temporarily in a buffer, in order for translation steps to be performed on the data.

Dejaco does not teach the steps of:

- calculating current data of first linear prediction coefficients from past data of first linear prediction coefficients which are stored; and
- calculating current data of first excitation signal from past data of first excitation signal which are stored;

nor that

- … when said first codes are unavailable, said second codes are obtained by directly using speech parameters which are

ever decoded in accordance with said first system and are stored.

However, the examiner contends that these concepts were well known in the art, as taught by Kroon.

In the same field of endeavor of speech coding, Kroon teaches reconstructing a current frame, based on previously received information *(col. 31, lines 65-66)*, including the calculation of current linear prediction coefficients from past stored linear prediction coefficients *(col. 7, lines 26-42; col. 32, lines 22-25; the stored LPC coefficients from last good frame are used upon occurrence of frame erasure)* and calculation of a current of excitation signal data from past stored excitation data *(col. 5, line 51-col. 7, line 24; col. 32, line 54-col. 33, line 10; past classification of a previously received frame is used to generate the replacement excitation)*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the code converting method of Dejaco with the technique of reconstructing current data from past stored data to use the reconstructed data, as taught by Kroon, in order to mitigate errors in speech signal transmission resulting from lost or corrupted data *(Kroon, col. 1, lines 34-40 and 51-62)*.

13. With respect to **claim 3**, Dejaco in view of Kroon teaches everything claimed, as applied above (see claim 2); in addition, Dejaco further teaches the method of converting code according to claim 2, further comprising:

- generating a first speech signal by driving a filter having any of first linear prediction coefficients derived from said current data of first linear prediction coefficients

and second linear prediction coefficients derived from said data of second linear prediction coefficients by using a first excitation signal derived from said current data of first excitation signal *(Figs. 6 and 12; col. 8, lines 25-35; col. 8, line 53-col. 9, line 28; speech synthesizer (606) generates a target signal using the output formant filter coefficients and the input codebook and pitch excitation parameters)*; and

- obtaining data of second excitation signal from said first speech signal and any of said first linear prediction coefficients and said second linear prediction coefficients *(Figs. 6 and 12; col. 8, lines 25-35; col. 8, line 53-col. 9, line 28; searcher (608) uses the target signal to obtain and quantize the output codebook and pitch parameters)*.

14. With respect to **claims 4 and 14**, Dejaco in view of Kroon teaches everything claimed, as applied above (see claims 2 and 3); in addition, Dejaco further teaches a method wherein said data of excitation signal includes any of an adaptive codebook data, a fixed codebook data and a gain data *(Fig. 12; col. 8, line 53-col. 9, line 28; excitation parameters include a codebook index, gain parameter, and pitch lag parameters)*.

15. With respect to independent **claim 6**, Dejaco teaches a code conversion apparatus, which converts first codes based on a first system to second codes based on a second system, comprising:

- a linear prediction coefficients data decoding circuit configured to obtain data of first linear prediction coefficients from said first codes *(Fig. 6, col. 6, lines 42-46, packet translator (600) receives input speech packets comprising formant filter coefficients in the input format; col. 4, lines 39-40, formant filter coefficients are LPC coefficients)*;
- an excitation signal data decoding circuit configured to obtain data of first excitation signal from said first codes *(Fig. 6, col. 6, lines 42-46, packet translator (600) receives input speech packets comprising input codebook and pitch parameters (excitation parameters) in the input format)*;
- a linear prediction coefficients data encoding circuit configured to obtain data of second linear prediction coefficients from said current data of first linear prediction coefficients *(Fig. 6, col. 6, line 63-col. 7, line 4, formant parameter translator (620) translates the input formant filter coefficients to the output format to produce output formant filter coefficients; col. 4, lines 39-40, formant filter coefficients are LPC coefficients)*; and
- an excitation signal data generating circuit configured to obtain data of second excitation signal from said current data of first excitation signal *(Fig. 6, col. 6, line 63-col. 7, line 8, excitation parameter translator (630) translates the input pitch and codebook parameters to the output format to produce output pitch and codebook parameters).*

Dejaco does not explicitly teach:

- a linear prediction coefficients data storage circuit configured to store said data of first linear prediction coefficients; and
- an excitation signal data storage circuit configured to store said data of first excitation signal;

however, it is inherent that the received data be stored, even if temporarily in a buffer, in order for translation steps to be performed on the data.

Dejaco does not teach:

- a linear prediction coefficients data calculating circuit configured to calculate current data of first linear prediction coefficients from past data of first linear prediction coefficients which are stored;
- an excitation signal data calculating circuit configured to calculate current data of first excitation signal from past data of first excitation signal which are stored;

nor that

- wherein when said first codes are unavailable, said second codes are obtained by directly using speech parameters which are ever decoded in accordance with said first system and are stored.

However, the examiner contends that these concepts were well known in the art, as taught by Kroon.

In the same field of endeavor of speech coding, Kroon teaches an apparatus for reconstructing a current frame, based on previously received information *(Figs. 1 and 2; col. 31,*

lines 65-66), including the calculation of current linear prediction coefficients from past stored linear prediction coefficients *(col. 7, lines 26-42; col. 32, lines 22-25; the stored LPC coefficients in memory (95) from last good frame are selected via a switch (46) upon occurrence of frame erasure)* and calculation of a current of excitation signal data from past stored excitation data *(col. 5, line 51-col. 7, line 24; col. 32, line 54-col. 33, line 10; past classification of a previously received frame is used to generate the replacement excitation)*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the code converting apparatus of Dejaco with the apparatus used for the technique of reconstructing current data from past stored data to use the reconstructed data, as taught by Kroon, in order to mitigate errors in speech signal transmission resulting from lost or corrupted data *(Kroon, col. 1, lines 34-40 and 51-62)*.

16. With respect to **claim 7**, Dejaco in view of Kroon teaches everything claimed, as applied above (see claim 6); in addition, Dejaco further teaches `the code conversion apparatus according to claim 6, further comprising:`

- `a partial decoding circuit configured to generate a first speech signal by driving a filter having any of first linear prediction coefficients derived from said current data of first linear prediction coefficients and second linear prediction coefficients derived from said data of second linear prediction coefficients by using a first excitation signal derived from said current data of first excitation signal` *(Figs. 6 and 12; col. 8, lines 25-35; col. 8, line 53-col. 9, line 28; speech*

synthesizer (606) generates a target signal using the output formant filter coefficients and the input codebook and pitch excitation parameters); and

- an excitation signal data generating circuit configured to obtain data of second excitation signal from said first speech signal and any of said first linear prediction coefficients and said second linear prediction coefficients *(Figs. 6 and 12; col. 8, lines 25-35; col. 8, line 53-col. 9, line 28; searcher (608) uses the target signal to obtain and quantize the output codebook and pitch parameters)*.

17. With respect to **claims 8 and 15**, Dejaco in view of Kroon teaches everything claimed, as applied above (see claims 6 and 7); in addition Dejaco further teaches an apparatus wherein said data of excitation signal includes any of an adaptive codebook data, a fixed codebook data and a gain data *(Fig. 12; col. 8, line 53-col. 9, line 28; excitation parameters include a codebook index, gain parameter, and pitch lag parameters)*.

18. Independent **claim 10** is a claim directed to a computer program product that is similar in scope and content to the method claim of claim 2. In addition, Dejaco teaches that the translation may be done to interface a wireless telephone system to the internet (col. 6, lines 50-52). Therefore, the examiner contends that it would be obvious to implement the code conversion method as a computer program product to be executed by a computer, and as such is rejected for the same reasons as claim 2.

19. **Claim 11** is a claim directed to a computer program product that is similar in scope and content to the method claim of claim 3, and is rejected for the same reasons.

20. **Claims 12 and 16** are claims directed to a computer program product that is similar in scope and content to the method claims of claims 4 and 14, respectively, and are rejected for the same reasons.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoon et al. ("An efficient transcoding algorithm for G.723.1 and G.729A speech coders") and Suzuki et al. (US 7,016,831) disclose methods and apparatus for speech transcoding (code conversion).

Jacobs et al. (US 5,657,420) disclose methods and apparatus for error concealment in case of blank frames, erasure frames, or error frames.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GINA W. LEE whose telephone number is (571)270-3139. The examiner can normally be reached on Monday to Friday, 8:00 AM - 5:00 PM EST.

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

24. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick Edouard
Examiner
Art Unit 2626

GWL

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626